

INHIBITION OF NONINACTIVATING Na CHANNELS OF MAMMALIAN
OPTIC NERVE AS A MEANS OF PREVENTING OPTIC NERVE
DEGENERATION ASSOCIATED WITH GLAUCOMA

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Abstract of the Invention

A method and composition for altering a plausible sequence of pathological events in retinal ganglion cells associated with glaucoma, the sequence including membrane depolarization, influx of millimolar amounts of Na^+ via non-inactivating Na^+ channels, and the lethal elevation of cell Ca^{2+} due to reversal of the $\text{Na}^+/\text{Ca}^{2+}$ exchanger. The method includes blocking, by administration of a selected composition, of associated, non-inactivating Na^+ channels in retinal ganglion cells in order to limit $\text{Na}^+/\text{Ca}^{2+}$ exchange in the retinal ganglion cells and prevent buildup of the Ca^{2+} level in the retinal ganglion cells to a lethal level. The results in a method of preventing retinal ganglion cell death, associated with glaucoma, by administering to the optic nerve of a mammal, a compound which blocks the non-inactivating sodium ion channels of the optic nerve. Alternately, said invention relates to a method of preventing optic retinal ganglion cell death in a human by administering to the retinal ganglion cells of said human a compound which blocks the non-inactivating sodium ion channel of the retinal ganglion cells.